Claims

1. **(Currently Amended)** In a ~~computer system~~ computing device that implements a video encoder, a method of encoding a video image in a video image sequence, wherein the video image is partitioned into sets of pixels, the method comprising:

with the computing device that implements the video encoder:

encoding a set of pixels, including:

determining a value for a switch code, wherein the value for the switch code indicates whether the set of pixels is intra-coded; and

jointly coding the value for the switch code with motion vector information for the set of pixels, wherein a single variable length code represents the value for the switch code and the motion vector information, the single variable length code being selected from a table of different value combinations for the switch code and the motion vector information; and

outputting the single variable length code in a bit stream.

2. (original) The method of claim 1 wherein the set of pixels is a block.

3. (original) The method of claim 1 wherein the set of pixels is a macroblock.

4. (original) The method of claim 1 wherein the value for the switch code indicates the set of pixels is intra-coded, and wherein the motion vector information comprises a pseudo motion vector.

5. **(Currently Amended)** In a ~~computer system~~ computing device that implements a video encoder, a method of encoding a video image in a video image sequence, wherein the video image is partitioned into sets of pixels, the method comprising:

with the computing device that implements the video encoder:

encoding a set of pixels, including:

determining a value for a switch code, wherein the value for the switch code indicates whether the set of pixels is intra-coded;

jointly coding the value for the switch code with motion vector information for the set of pixels and with a terminal symbol indicating whether transform coefficient data is encoded

for the set of pixels, wherein the jointly coding yields an extended motion vector code that is a single variable length code representing (a) the value for the switch code, (b) the motion vector information and (c) the terminal symbol, the single variable length code being selected from a table of different value combinations for the switch code, the motion vector information and the terminal symbol; and

outputting the single variable length code in a bit stream.

6. (original) The method of claim 5 further comprising jointly coding additional data for the set of pixels with the extended motion vector code.

7. (original) The method of claim 5 wherein the video image is a bi-directionally predicted video image, further comprising jointly coding an index for a reference image for the predicted video image with the extended motion vector code.

8. (original) The method of claim 5 wherein the video image is a field-coded video image, further comprising jointly coding an index for a reference field for the field-coded video image with the extended motion vector code.

9. (original) The method of claim 5 further comprising jointly coding fading information for the video image with the extended motion vector code.

10. (original) The method of claim 5 further comprising jointly coding an entropy code table index for the video image with the extended motion vector code.

11. (original) The method of claim 5 wherein the set of pixels is a block.

12. (original) The method of claim 5 wherein the set of pixels is a macroblock.

13. – 47. (canceled)

48. (**Currently Amended**) A method of reconstructing one or more video images in a video sequence using a computing device that implements a video decoder, the method comprising:

with the computing device that implements the video decoder:

receiving encoded data from a bit stream; and

decoding a set of pixels using the encoded data from the bit stream, wherein the decoding the set of pixels comprises:

decoding an extended motion vector code for the set of pixels, wherein the extended motion vector code reflects joint encoding of motion information together with intra/inter decision information indicating whether the set of pixels is intra-coded or inter-coded and with a terminal symbol, wherein the extended motion vector code is a single variable length code representing (a) the intra/inter decision information, (b) the motion information and (c) the terminal symbol, and wherein the decoding the extended motion vector code uses a table of different value combinations for the intra/inter decision information, the motion information and the terminal symbol;

determining whether transform coefficient data for the set of pixels is included in the bit stream based at least in part upon results of the decoding the extended motion vector code.

49. (previously presented) The method of claim 48 wherein the extended motion vector code indicates the set of pixels is skip-coded.

50. (previously presented) The method of claim 48 wherein the set of pixels is intra-coded, and wherein the motion information comprises a pseudo motion vector.

51. (previously presented) The method of claim 48 wherein the motion information comprises motion vector information for a differential motion vector for the set of pixels.

52. (previously presented) The method of claim 48 wherein the extended motion vector code is preceded in the bit stream by header information.

53. (previously presented) The method of claim 48 wherein the extended motion vector code is followed in the bit stream by a coded block pattern code.

54. (previously presented) The method of claim 48 wherein the determining is based on the terminal symbol.

55. (previously presented) The method of claim 48 wherein the set of pixels is a macroblock.

56. (previously presented) The method of claim 55 further comprising decoding a second extended motion vector code for the macroblock.

57. (previously presented) The method of claim 56 wherein the macroblock is a bi-directionally predicted macroblock.

58. (previously presented) The method of claim 56 wherein the macroblock is a field-coded interlace macroblock.

59. (previously presented) The method of claim 55 further comprising decoding an extended motion vector code for each block in the macroblock.

60. (previously presented) The method of claim 59 wherein the extended motion vector codes are preceded in the bit stream by a modified coded block pattern code.

61. – 63. (canceled)

64. (previously presented) The method of claim 55 wherein the macroblock includes four blocks each comprising an 8x8 array of luminance pixels, and two blocks each comprising an 8x8 array of chrominance pixels.

65. (previously presented) The method of claim 55 wherein the macroblock includes four blocks each comprising an 8x8 array of luminance pixels, and four blocks each comprising a 4x8 array of chrominance pixels.

66. (previously presented) The method of claim 55 wherein the macroblock includes four blocks each comprising an 8x8 array of luminance pixels, and four blocks each comprising an 8x8 array of chrominance pixels.

67. (canceled)

68. (canceled)

69. (**Currently Amended**) A computer system that implements a video decoder, the system comprising:

one or more processors;

memory;

at least one input device, output device or communication connection; and

one or more storage media storing instructions for causing the system to decode video using:

means for receiving encoded data from a bit stream; and

means for decoding one or more video images in a video image sequence, wherein the one or more video images comprise sets of pixels, and wherein the means for decoding comprises:

means for decoding an extended motion vector code for a set of pixels, wherein the extended motion vector code reflects joint encoding of motion information together with intra/inter decision information indicating whether the set of pixels is intra-coded or inter-coded and with a terminal symbol, wherein the extended motion vector code is a single variable length code representing (a) the intra/inter decision information, (b) the motion information and (c) the terminal symbol, and wherein the decoding the extended motion vector code uses a table of different value combinations for the intra/inter decision information, the motion information and the terminal symbol; and

means for determining whether subsequent data for the set of pixels is included in the bit stream based at least in part upon results of the decoding the extended motion vector code.

70. (**Currently Amended**) A computer system that implements a video encoder, the system comprising:

one or more processors;

memory;

at least one input device, output device or communication connection; and

one or more storage media storing instructions for causing the system to encode video using:

means for encoding one or more video images in a video image sequence, wherein the one or more video images comprise sets of pixels, and wherein the means for encoding comprises:

means for encoding an extended motion vector code for a set of pixels, wherein the extended motion vector code reflects joint encoding of motion information together with intra/inter decision information indicating whether the set of pixels is intra-coded or inter-coded and with a terminal symbol, wherein the terminal symbol indicates whether subsequent data for the set of pixels is included in the encoded bit stream, and wherein the extended motion vector code is a single variable length code representing (a) the intra/inter decision information, (b) the motion information and (c) the terminal symbol, the single variable length code being selected from a table of different value combinations for the intra/inter decision information, the motion information and the terminal symbol; and

means for outputting encoded data including the single variable length code in the bit stream.

71. (**Currently Amended**) A method of reconstructing one or more video images in a video sequence using a computing device that implements a video decoder, the method comprising:

with the computing device that implements the video decoder:

receiving encoded data from a bit stream; and

decoding a set of pixels using the encoded data from the bit stream, wherein the decoding the set of pixels comprises:

decoding an extended motion vector code for the set of pixels, wherein the extended motion vector code reflects joint encoding of motion vector information together with intra/inter decision information indicating whether the set of pixels is intra-coded or inter-coded and with a terminal symbol, wherein the extended motion vector code is a single variable length code

representing (a) the intra/inter decision information, (b) the motion vector information and (c) the terminal symbol, and wherein the decoding the extended motion vector code uses a table of different value combinations for the intra/inter decision information, the motion vector information and the terminal symbol;

determining whether subsequent data for the set of pixels is included in the bit stream based at least in part upon results of the decoding the extended motion vector code.

72. (previously presented) The method of claim 71 wherein the extended motion vector code indicates the set of pixels is skip-coded.

73. (previously presented) The method of claim 71 wherein the set of pixels is intra-coded, and wherein the motion vector information comprises a pseudo motion vector.

74. (previously presented) The method of claim 71 wherein the motion vector information comprises differential motion vector information for the set of pixels.

75. (previously presented) The method of claim 71 wherein the extended motion vector code is preceded in the bit stream by header information.

76. (previously presented) The method of claim 71 wherein the extended motion vector code is followed in the bit stream by a coded block pattern code.

77. (previously presented) The method of claim 71 wherein the determining is based on the terminal symbol.

78. (previously presented) The method of claim 1 wherein the motion vector information represents plural values used to reconstruct a differential motion vector for the set of pixels.